PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY
(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference 2003UR041	FOR FURTHER ACTION	See Form PCT/IPEA/416
International application No. PCT/US04/33900	International filing date *(day/month/year)* 14 October 2004 (14.10.2004)	Priority date *(day/month/year)* 03 December 2003 (03.12.2003)
International Patent Classification (IPC) or national classification and IPC IPC(7): E21B 43/04, 43/08 and US Cl.: 166/51, 278, 227		
Applicant EXXONMOBIL UPSTREAM RESEARCH COMPANY		

1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 4 sheets, including this cover sheet.
3. This report is also accompanied by ANNEXES, comprising:
   a. ☒ *(sent to the applicant and to the International Bureau)* a total of 14 sheets, as follows:
      ☐ sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).
      ☐ sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.
   b. ☐ *(sent to the International Bureau only)* a total of (indicate type and number of electronic carrier(s)) _____ , containing a sequence listing and/or tables related thereto, in electronic form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).
4. This report contains indications relating to the following items:

☒	Box No. I	Basis of the report
☐	Box No. II	Priority
☐	Box No. III	Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
☐	Box No. IV	Lack of unity of invention
☒	Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
☐	Box No. VI	Certain documents cited
☐	Box No. VII	Certain defects in the international application
☐	Box No. VIII	Certain observations on the international application

Date of submission of the demand	Date of completion of this report
25 August 2005 (25.08.2005)	09 November 2005 (09.11.2005)
Name and mailing address of the IPEA/ US Mail Stop PCT, Attn: IPEA/US Commissioner for Patents P.O. Box 1450 Alexandria, Virginia 22313-1450 Facsimile No. (571) 273-3201	Authorized officer D. Wildermuth for Hoang Dang Telephone No. 571-272-3600

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.
PCT/US04/33900

Box No. I Basis of the report

1. With regard to the **language**, this report is based on:

☒ the international application in the language in which it was filed.

☐ a translation of the international application into English, which is the language of a translation furnished for the purposes of:

- ☐ international search (under Rules 12.3 and 23.1(b))
- ☐ publication of the international application (under Rule 12.4(a))
- ☐ international preliminary examination (under Rules 55.2(a) and/or 55.3(a))

2. With regard to the **elements** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:

☐ the international application as originally filed/furnished

☒ the description:
pages 1-8 as originally filed/furnished
pages* 9-14 received by this Authority on 25 August 2004 (25.08.2005)
pages* NONE received by this Authority on

☒ the claims:
pages NONE as originally filed/furnished
pages* NONE as amended (together with any statement) under Article 19
pages* 15-22 received by this Authority on 25 August 2005 (25.08.2005)
pages* NONE received by this Authority on

☒ the drawings:
pages 1-3 as originally filed/furnished
pages* NONE received by this Authority on
pages* NONE received by this Authority on

☐ a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing.

3. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages
- ☐ the claims, Nos.
- ☐ the drawings, sheets/figs
- ☐ the sequence listing (*specify*):
- ☐ any table(s) related to the sequence listing (*specify*):

4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

- ☐ the description, pages
- ☐ the claims, Nos.
- ☐ the drawings, sheets/figs
- ☐ the sequence listing (*specify*):
- ☐ any table(s) related to the sequence listing (*specify*):

** If item 4 applies, some or all of those sheets may be marked "superseded."*

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.
PCT/US04/33900

Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims Please See Continuation Sheet	YES
	Claims Please See Continuation Sheet	NO
Inventive Step (IS)	Claims Please See Continuation Sheet	YES
	Claims Please See Continuation Sheet	NO
Industrial Applicability (IA)	Claims Please See Continuation Sheet	YES
	Claims Please See Continuation Sheet	NO

2. Citations and Explanations (Rule 70.7)

Claims 1-3, 6-10, 13-17, 20-24, 27-34, 37-42 and 45-51 lack novelty under PCT Article 33(2) as being anticipated by Hirsh (US 3,450,207). The claimed structure and method steps read exactly on the reference's when the "upper section of base pipe 45 containing smaller slots 48", "the lower section of base pipe 45 containing larger slots 48" and "wire wrapping screen 30" in the embodiment of Figure 3 of Hirsh are respectively considered as "second basepipe section", "first basepipe section" and "outer permeable material" as recited. It is noted that the word "adjacent" is a relative term and that holes in a perforated pipe can be in the form of slots.

Claims 5, 12, 19, 26, 36, 44 and 52 lack an inventive step under PCT Article 33(3) as being obvious over Hirsch '207 in view of Jones et al (US 5,113,935). Hirsch discloses the invention as claimed except the use of "alternate path technology shunts". However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide Hirsh with such shunts or conduits in order to improve the efficiency of the gravel pack operation as taught by Jones et al (see column 2, lines 19-33).

Claims 4, 11, 18, 25, 35 and 43 meet the criteria set out in PCT Article 33(2)-(3), because the prior art does not teach or fairly suggest a wellbore apparatus, wellbore or a method of completing a wellbore as claimed and wherein the number of slots in the second basepipe section is large enough for the friction of fluid flow through the slots to be comparable to or not much greater than the friction across the outer permeable media.

Claims 1-52 meet the criteria set out in PCT Article 33(4), and thus the claimed invention has industrial applicability because the subject matter claimed can be made or used in industry.

---------- NEW CITATIONS ----------

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.
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Supplemental Box

In case the space in any of the preceding boxes is not sufficient.

Continuation of:

V.1. Reasoned Statements:
The opinion as to Novelty was positive (Yes)with respect to claims 4, 5, 11, 12, 18, 19, 25, 26, 35, 36, 43, 44 and 52
The opinion as to Novelty was negative (No) with respect to claims 1-3, 6-10, 13-17, 20-24, 27-34, 37-42 and 45-51
The opinion as to Inventive Step was positive (Yes)with respect to claims 4, 11, 18, 25, 35 and 43
The opinion as to Inventive Step was negative(NO) with respect to claims 1-3, 5-10, 12-17, 19-24, 26-34 and 36-42 and 44-52
The opinion as to Industrial Applicability was positive (YES) with respect to claims 1-52
The opinion as to Industrial Applicability was negative(NO) with respect to claims NONE

this is intended to be illustrative only. Accordingly, the invention is not limited to the specific embodiments described below, but rather, the invention includes all alternatives, modifications, and equivalents falling within the true scope of the appended claims.

[0031] This invention discloses an wellbore apparatus for addressing gravel infiltration. The concept permits an outer permeable member or screen failure, by employing back-up media to retain gravel and form a stable gravel pack.

[0032] The apparatus comprises an outer permeable member in the wellbore with a slotted basepipe section and a perforated basepipe section inside the wellbore. At least a portion of the perforated basepipe section is adjacent to the wellbore and at least a portion of the slotted basepipe is above the production interval. The first and second basepipe provides a three-dimensional surface defining a fluid flow path through the wellbore.

[0033] Figures 2(a) illustrates an embodiment of the apparatus in an open-hole wellbore. Typically, as shown in Figure 2(a), a series of screen joints **10** are placed in the wellbore. In open-hole completion **12**, as shown in Figure 2(a), the outer permeable member shown as a top screen joint **10**, comprising a slotted basepipe **17**, is typically located near or above the casing shoe **13**. The lower outer permeable member shown as a screen joint is typically located in the production interval **14** against the open-hole pay sand. Gravel packing material **18** is typically placed in the wellbore outside the outer permeable members 15, which may also be referred to as outer permeable media, permeable media and/or outer permeable material. Figure 2(b) is a cross section of the apparatus of Figure 2(a) in which the like elements to

Figure 2(a) have been given like numerals. As shown in Figure 2(a) the outer permeable member **15** retains the gravel packing material **18** from the basepipe **20**. The interior of the basepipe **20** is a three-dimensional surface defining a fluid flow path through the wellbore. The interior **25** of the basepipe **20** is sometimes referred to as a production string. As shown in Figure 2(a), at least a portion of a basepipe with perforations **21** is located adjacent to the production interval **14** and at least a portion of the slotted basepipe is located near or above a cased shoe **13** above the production interval **14**. Typically, as shown in Figure 2(a), the slots **16** are vertical but can be horizontal or slanted.

[0034] Figure 3(a) is an illustration of the wellbore apparatus with a perforated cased-hole completion interval that is similar to the embodiment of Figure 2(a) in which the like elements to Figure 2(a) have been given like numerals. In cased-hole completion, as shown in Figure 3(a) a top screen joint **10** is located near or above the top perforation and a lower screen joint **11** is located in the production interval **14** with perforations **21**. In different embodiments there may be more than one top screen joint near or above the perforations **21**. Furthermore, there may be more than one lower screen joint below the top perforation.

[0035] The lower permeable member or screen joint **11** may be a commercially available gravel pack screens, for example, wire-wrapped screen or mesh type screen. In this embodiment, inside the lower screen joint **11** is a perforated basepipe. The hole size of the perforations **21** is preferable large enough to allow gravel freely passing through. The top screen joint **10** contains a slotted basepipe **17** covered by a permeable media. The slot openings or slots **16** on the basepipe are sized to be small

enough to retain gravel and large enough to allow residual mud and formation fines freely passing through. Preferably, the slot number or density is large enough so that the fluid flow friction is comparable or not much greater than the corresponding friction across the media of the outer permeable member **15**. The top and lower screens may be connected by a coupling **19** on the basepipe such that the fluid could travel inside the basepipe between the two screen joints.

[0036] In one embodiment, alternate production flowpaths may be built into the apparatus to allow multiple flowpaths in the wellbore. Co-pending U.S. provisional application No. 60/459,151 discloses a Mazeflo device wherein multiple flowpaths are provided. U.S. Provisional Application No. 60/459,151 is hereby incorporated by reference.

[0037] One example of a multiple flowpath embodiment would be to provide enough spacing between the perforated and slotted basepipes and the outer permeable member to form a second fluid flow joint. A flow joint is a separate three-dimensional surface defining a fluid flow path through the wellbore. Figure 4(a) is an illustration of a multiple flowpath apparatus incorporating the Mazeflo design wherein the like elements to Figure 2(a) have been given like numerals. In this embodiment the outer permeable member **15** is a well-screen that is a continuous well-screen providing a second flow path and joint **41** for production fluid through the wellbore. The first flow joint or screen **10** for fluid production is inside the slotted and perforated basepipes **17** and **22**. In this embodiment the slots **16** and perforations **21** provide the permeable connection between the first and second flow joints and the weld joints **19** provide the section of separate flow within the second flow joint **41**.

The slotted and perforated basepipes can also be engineered to have impermeable solid sections and allow a variety of flow paths between the first and the second flow joints.

[0038] Figure 4(b) is a cross-section of Figure 4(a) wherein like elements to Figure 4(a) have been given like numerals. As shown in Figure 4(b) two distinct flow joints are available in this embodiment. The flow joint inside the basepipe is the first flow joint **43** and the area between the well-screen and basepipe forms the second flow joint **41**. Additional flow joints can be created by the placement of additional basepipes, baffles and walls inside the wellbore. The additional flowjoints would provide redundancy permitting production of hydrocarbons despite sand infiltration from a sand-screen failure.

[0039] Figure 5(a) is an illustration of a multiple flowpath apparatus in a cased wellbore incorporating the Mazeflo design wherein the like elements to Figure 4(a) have been given like numerals. In this embodiment, at least a portion of the perforated basepipe **22** is adjacent to production interval **14** and at least a portion of the slotted basepipe **17** is adjacent to the cased interval above the top perforation **21**. Figure 5(b) is a cross section of Figure 5(a) that is similar to Figure 4(a) wherein similar elements are given like numerals. As shown in Figure 5(b), the continuous sand-screen or sand joint **10** provides a second flow joint **41** with the inside of the basepipe **20** providing the first flow joint **43**.

[0040] In one embodiment, the apparatus may be installed as a completion device before gravel packing. After installation of the apparatus the well is then gravel packed using alternate path shunts or conventional gravel packing technology. The

basepipe inside the apparatus can be utilized as a production string producing hydrocarbons through the wellbore from the subterranean production interval to the surface of the earth.

Example

[0041] During gravel packing, a slurry of mixing gravel in a carrier fluid is pumped into the annulus around both top and lower screens. As shown in Figure 3(a), after the carrier fluid leaks off into formations or screens, gravel pack from the gravel packing material **18** is formed in the annulus. In the cased-hole completions, gravel pack is also formed inside the perforations **21**. When the top screen joint of Figure 3(a) is nearly covered by the annular gravel pack, the pumping pressure increases rapidly due to the diminishing area available for fluid flow. The high slurry injection pressure may instantly shear off the top screen jacket at the welding area or cause the wires of the screen (if wire-wrapped screen is used) parting due to both shear/compression load and erosion. In either case, gravel will intrude through the outer media of the outer permeable member **15**. In conventional gravel pack completions, the top screen joint **10** is identical to the lower screen joint **11**. That is, the top screen failure would result in losing gravel through the perforated pipe.

[0042] In the current invention, the intruded gravel will be retained by the slots **16** and maintain a stable gravel pack and gravel reserve. Since the slotted pipe is much stronger than either the welding area or the outer screen media of the outer permeable member **15**, as well as the slotted pipe has not been exposed to long period of slurry erosion, the high slurry pressure could be sustained until sand-out, the end of gravel packing job. U.S. Patent Nos. 4,945,991 and 5,113,935 disclose alternate path

technology shunt tubes that can be attached to both top and lower screen joints. U.S. Patent Nos. 4,945,991 and 5,113,935 are hereby incorporated by reference. With alternate path technology, maintaining high slurry injection pressure at reduced pumping rate is important in allowing shunt tubes to pack all voids in the wellbore. A relatively void-free or complete gravel pack promotes gravel pack longevity. The slots may be placed evenly over the entire basepipe in the top screen joint. The slots may also be placed on part, for example, the lower portion, of the basepipe to further enhance the mechanical strength in the basepipe of the top screen joint.

[0043] The slots are sized to retain gravel but allow free pass-through of residual mud and formation fines. During well production, the dominant flow path would typically in Figure 2(a) and Figure 3(a) be from open hole or perforated production interval **14** toward the lower screen joint **11**. Since the top screen joints, **10** are not primary production flow paths, slot plugging, if occurs although unlikely, will have minimum impact on well productivity.

[0044] The apparatus may utilize slotted basepipe in the top screen joint or all or part of screen joints above the casing shoe (open-hole) or above the perforated interval (cased-hole). The current invention provides a reliable and forgiving apparatus and method to resolve gravel loss caused by screen damage during gravel packing. When the apparatus is applied to the field, the current screen manufacturing process and field operation procedures remain unchanged.

CLAIMS

What is claimed is:

1. A wellbore apparatus comprising:

a) an outer permeable material;

b) a first basepipe section wherein at least a portion of the first basepipe section is perforated, the first basepipe section is inside the outer permeable material and at least part of the first basepipe section is adjacent to a production interval of a wellbore;

c) a second basepipe section wherein at least a portion of the second basepipe section is slotted, the second basepipe section is inside the outer permeable material and above the first basepipe section, wherein at least a portion of the second basepipe section is adjacent to a non production section of the wellbore;

d) the first basepipe section and second basepipe section providing a three-dimensional surface defining a fluid flow path through the wellbore.

2. The wellbore apparatus of claim 1 wherein the outer permeable material is a well-screen.

3. The wellbore apparatus of claim 1 wherein slots of the second basepipe section are at least large enough to permit passage of residual mud and formation fines and small enough to retain gravel.

4. The wellbore apparatus of claim 1 wherein the number of the slots is large enough for the friction of fluid flow through the slots to be comparable to or not much greater than the friction across the outer permeable material.

5. The wellbore apparatus of claim 1 further comprising alternate path technology shunts coupled to the outer permeable material.

6. The wellbore apparatus of claim 1 wherein the wellbore is an open-hole wellbore and at least part of the second basepipe section is above a casing shoe.

7. The wellbore apparatus of claim 1 wherein the wellbore is a cased-hole wellbore with a perforated interval and at least part of the second basepipe section is above a casing shoe above the perforated interval.

8. A wellbore apparatus, comprising:

a) an outer permeable member;

b) a perforated basepipe section inside the outer permeable member wherein at least part of the perforated basepipe section is adjacent to a production interval of a wellbore;

c) a slotted basepipe section inside the outer permeable member and above the perforated basepipe section, wherein at least a portion of the slotted basepipe section is adjacent to a non perforated section of the wellbore; and

d) the perforated and slotted basepipe sections providing a three-dimensional surface defining a fluid flow path through the well.

9. The wellbore apparatus of claim 8 wherein the outer permeable member comprises a well-screen.

10. The wellbore apparatus of claim 8 wherein slots of the slotted basepipe section are at least large enough to permit passage of residual mud and formation fines and small enough to retain gravel.

11. The wellbore apparatus of claim 8 wherein the number of the slots is large enough for the friction of fluid flow through the slots to be comparable to or not much greater than the friction across the outer permeable member.

12. The wellbore apparatus of claim 8 further comprising alternate path technology shunts in the outer permeable member.

13. The wellbore apparatus of claim 8 wherein the wellbore is an open-hole wellbore and at least part of the second basepipe section is above the casing shoe above the production interval.

14. The wellbore apparatus of claim 8 wherein the production interval is a cased-hole wellbore with a perforated interval and at least part of the second basepipe section is above a casing shoe above the perforated interval.

15. A wellbore comprising:

a) an outer permeable member in the wellbore;

b) a first basepipe section with at least a portion of the first basepipe section being perforated, the first basepipe section is inside the outer permeable member and at least part of the first basepipe section is adjacent to a production interval;

c) a second basepipe section with at least a portion of the second basepipe section being slotted, the second basepipe section inside the outer permeable member and above the second basepipe section, wherein at least a portion of the second basepipe section is adjacent to a non production section of the wellbore.

16. The wellbore of claim 15 wherein the outer permeable member comprises a well-screen.

17. The wellbore of claim 15 wherein slots of the second basepipe section are at least large enough to permit passage of residual mud and formation fines and small enough to retain gravel.

18. The wellbore of claim 15 wherein the number of the slots is large enough for the friction of fluid flow through the slots to be comparable to or not much greater than the friction across the outer permeable member.

19. The wellbore of claim 15 further comprising alternate path technology shunts associated with the outer permeable member.

20. The wellbore of claim 15 wherein the wellbore is an open-hole wellbore and at least part of the second basepipe section is above a casing shoe.

21. The wellbore of claim 15 wherein the wellbore is a cased-hole wellbore with a perforated interval and at least part of the second basepipe section is above a casing shoe above the perforated interval.

22. A wellbore comprising:

a) a wellbore wherein the wellbore comprises at least one perforated section within a hydrocarbon production interval and at least one non perforated section above the at least one perforated section;

b) an outer permeable member in the wellbore;

c) a perforated basepipe section inside the outer permeable member, wherein at least part of the perforated basepipe section is adjacent to the at least one perforated section;

d) a slotted basepipe section inside the outer permeable member and above the perforated basepipe section, wherein at least a portión of the slotted basepipe section is adjacent to the at least one non perforated section; and

e) the perforated and slotted basepipe sections providing a three-dimensional surface defining a fluid flow path through the wellbore.

23. The wellbore of claim 22 wherein the outer permeable member is well-screen.

24. The wellbore of claim 22 wherein slots of the slotted basepipe section are at least large enough to permit passage of residual mud and formation fines and small enough to retain gravel.

25. The wellbore of claim 22 wherein the number of slots in the slotted basepipe section is large enough for the friction of fluid flow through the slots to be at least equal to the friction across the outer permeable member.

26. The wellbore of claim 22 further comprising alternate path technology shunts in the outer permeable member.

27. The wellbore of claim 22 wherein the wellbore is an open-hole wellbore and at least part of the second basepipe section is above a casing shoe.

28. The wellbore of claim 22 wherein the wellbore is a cased-hole wellbore with a perforated interval and at least part of the second basepipe section is above a casing shoe above the perforated interval.

29. A method of completing a wellbore, comprising;

a) providing a wellbore apparatus comprising an outer permeable media, a first basepipe section with at least a portion of the first basepipe section being perforated and disposed inside the outer permeable media, and a second basepipe section with at least a portion of the second basepipe section being slotted, the second basepipe section disposed inside the outer permeable media and above the first basepipe section; and

b) disposing the wellbore apparatus in a wellbore wherein at least part of the first basepipe section is adjacent to a production interval and at least part of second basepipe section is adjacent to a non production section of the wellbore.

30. The method of claim 29 further comprising gravel packing the first basepipe section and at least a portion of the second basepipe section within the wellbore.

31. The method of claim 29 further comprising producing hydrocarbons from the wellbore.

32. The method of claim 29 wherein at least part of the first basepipe section is adjacent to the production interval that is cased with perforations and at least a portion of the second basepipe section is adjacent to a non perforated section of the wellbore.

33. The method of claim 29 wherein the outer permeable media is a well-screen.

34. The method of claim 29 wherein the second basepipe section has slots that are at least large enough to permit passage of residual mud and formation fines and small enough to retain gravel.

35. The method of claim 29 wherein the number of the slots in the second basepipe section is large enough for the friction of fluid flow through the slots to be at least equal to the friction across the outer permeable media.

36. The method of claim 29 further comprising alternate path technology shunts in the outer permeable media.

37. The method of claim 29 wherein the wellbore is an open-hole wellbore and at least part of the second basepipe section is above a casing shoe.

38. The method of claim 29 wherein the wellbore is a cased-hole wellbore with a perforated interval and at least part of the second basepipe section is above a casing shoe above the perforated interval.

39. A wellbore apparatus comprising:

a perforated basepipe, wherein at least a portion of the perforated basepipe disposed adjacent to a production interval of a wellbore; and

a slotted basepipe coupled to the perforated basepipe and disposed closer to the surface of the wellbore than the perforated basepipe.

40. The wellbore apparatus of claim 39 wherein at least a portion of the slotted basepipe is disposed adjacent to a non production interval of the wellbore.

41. The wellbore apparatus of claim 39 wherein a first outer permeable media coupled to the perforated basepipe and a second outer permeable media coupled to the slotted basepipe.

42. The wellbore apparatus of claim 41 wherein the first outer permeable media and the second outer permeable media comprise well screens.

43. The wellbore apparatus of claim 41 wherein the number of the slots in the slotted basepipe are configured to maintain a comparable friction of fluid flow for fluid through the slots and across the outer permeable media.

44. The wellbore apparatus of claim 41 further comprising alternate path technology shunts associated with the outer permeable media.

45. The wellbore apparatus of claim 39 wherein slots of the slotted basepipe are configured to permit passage of residual mud and formation fines and small enough to retain gravel.

46. The wellbore apparatus of claim 39 wherein the perforated basepipe is utilized to produce hydrocarbons from the wellbore.

47. A method comprising;

disposing at least a portion of a perforated basepipe adjacent to a production interval of a wellbore; and

disposing a slotted basepipe in the wellbore, wherein the slotted basepipe is coupled to the perforated basepipe and positioned closer to the surface of the wellbore than the perforated basepipe.

48. The method of claim 47 wherein at least a portion of the slotted basepipe is disposed adjacent to a non production interval of the wellbore.

49. The method of claim 47 comprising coupling a first outer permeable media to the perforated basepipe and a second outer permeable media to the slotted basepipe.

50. The method of claim 47 comprising gravel packing the perforated basepipe and at least a portion of the slotted basepipe within the wellbore.

51. The method of claim 47 comprising producing hydrocarbons from the wellbore via the perforated basepipe and the slotted basepipe.

52. The method of claim 47 further comprising alternate path technology shunts coupled to the perforated basepipe and the slotted basepipe.